



U.S. Department of Energy
Office of River Protection

P.O. Box 450
Richland, Washington 99352

02-OSR-0372

Mr. R. F. Naventi, Project Manager
Bechtel National, Inc.
3000 George Washington Way
Richland, Washington 99352

Dear Mr. Naventi:

CONTRACT NO. DE-AC27-01RV14136 - CONDITIONAL APPROVAL OF BECHTEL NATIONAL, INC. (BNI) AUTHORIZATION BASIS CHANGE NOTICES 24590-WTP-ABCN-ESH-02-015, REV. 0

- References:
1. BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Transmitted for Approval: Authorization Basis Change Notices 24590-WTP-ABCN-ESH-02-001, Revision 0; 24590-WTP-ABCN-ESH-02-010, Revision 0; 24590-WTP-ABCN-ESH-02-013, Revision 0; and 24590-WTP-ABCN-ESH-02-015, Revision 0," CCN 029186, dated May 1, 2002.
 2. ORP letter from R. C. Barr to R. F. Naventi, BNI, ORP, "Questions on Authorization Basis Change Notice 24590-WTP-ABCN-ESH-02-015, Revision 0," 02-OSR-0268, dated June 18, 2002.
 3. BNI Letter from A. R. Veirup to M. K. Barrett, ORP, "Closeout comments on Low Activity Waste Construction Authorization Requests," CCN 035133, dated July 3, 2002.
 4. BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Closeout Comments on Low Activity Waste Construction Authorization Request," CCN 038762, dated August 27, 2002.

The U.S. Department of Energy, Office of River Protection (ORP) has reviewed Authorization Basis Change Notice (ABCN) 24590-WTP-ABCN-ESH-02-015, Rev. 0, submitted in Reference 1. The proposed changes consist of the following:

This ABCN proposed a change to one of the Safety Requirements Document (SRD) Implementing Codes and Standards of Safety Criteria (SC) 4.3-7. Specifically, the ABCN proposed tailoring standard NUREG-0800, "Standard Review Plan, Section 6.4, Section II, Items 1-5" which is referenced as an implementing standard in SRD SC 4.3-7. In response to this ABCN, the OSR reviewers requested more information, sent to the Contractor as Questions ABCN-ESH-02-015-01 and ABCN-ESH-02-015-02, in Reference 2.

Mr. R. F. Naventi
02-OSR-0372

-2-

The reviewers had concerns that sufficient justification was not provided for tailoring certain criteria in standard NUREG-0800 and that the control room habitability standards in SRD SC 4.3-7 and NUREG-0800 would only be applied to the Pretreatment main control room. The Contractor adequately addressed these concerns in their responses to the questions (Reference 3 and 4).

Based upon the evaluation of the proposed changes and responses to questions, the ORP found the proposed changes identified in the ABCN conditionally acceptable. Conditional acceptance is based on wording changes committed to in the responses to Questions ABCN-ESH-02-015-01 and ABCN-ESH-02-015-02. The ORP concluded that with the wording changes, there is reasonable assurance that the health and safety of the public and the workers, and the environment will not be affected adversely, and comply with applicable laws, regulations, and RPP-WTP contractual requirements. Attached is the Safety Evaluation Report for the proposed changes.

As part of the amendment implementation process, please submit within 14 days of receipt of this letter the revised pages of the SRD, identifying all revisions to date. This amendment is effective immediately and shall be fully implemented within 30 days; i.e., the provisions of the amendment may be used immediately; within 30 days, controlled copies of the SRD, and subordinate documents must be modified to reflect the changes associated with this amendment.

If you have any questions, please contact me, or your staff may call Jeanie Polehn, Office of Safety Regulation, (509) 372-0787.

Sincerely,

Roy J. Schepens
Manager

OSR:JLP

Attachment

**Safety Evaluation Report (SER)
of Proposed Authorization Basis Change Notice (ABCN)
24590-WTP-ABCN-ESH-02-015, Rev. 0
to the Safety Requirements Document
for the River Protection Project-Waste Treatment Plant**

1.0 INTRODUCTION

The River Protection Project-Waste Treatment Plant (RPP-WTP) authorization basis (AB) is the composite of information, provided by the Contractor in response to radiological, nuclear, and process safety requirements, that is the basis on which the Office of River Protection (ORP) grants permission to perform regulated activities. The AB includes that information requested by the Contractor for inclusion in the AB and subsequently accepted by the ORP. The AB for the RPP-WTP includes, in part, the Safety Requirements Document (SRD). The SRD contains the approved set of radiological, nuclear and process safety standards and requirements, which if implemented, provide adequate protection of workers, the public, and the environment against the hazards associated with the operation of the facility. By letter dated May 1, 2002,¹ Bechtel National, Inc. (the Contractor) submitted a proposed amendment to the SRD. This Safety Evaluation Report (SER) documents the evaluation of the amendments proposed by the Contractor contained in ABCN 24590-WTP-ABCN-ESH-02-015, Rev 0.

2.0 BACKGROUND

The SRD contains the set of radiological, nuclear, and process safety standards necessary to ensure adequate protection of the health and safety of workers, co-located workers, the public, and the environment from radiological, nuclear, and process hazards. The SRD standards are developed and subsequently implemented via an iterative process. Included in the development process is a continuing review of industry practices, particularly those referenced in the SRD, and review of the results of the process hazards and accident analyses as they evolve with the design of the facility for potential impacts on the SRD standards used to ensure protection of the public, workers, and the environment.

ABCN 24590-WTP-ABCN-ESH-02-015, Rev 0, proposed changes to one of the SRD Implementing Codes and Standards of Safety Criteria (SC) 4.3-7 that addresses control room habitability requirements under normal, anticipated, and accident conditions. Specifically, the ABCN proposed tailoring standard NUREG-0800, "Standard Review Plan, Section 6.4, Section II, Items 1 through 5." NUREG-0800 is an Implementing Code and Standard for SC 4.3-7. The specific details of the tailoring are described in Appendix C of the SRD. NUREG-0800, Section 6.4 enhances SRD SC 4.3-7 by providing standards for control room habitability systems for commercial nuclear power reactors licensed by the U.S. Nuclear Regulatory Commission (NRC). Since NRC commercial nuclear power plants have significantly different hazards than those at

¹ BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Transmitted for Approval: Authorization Basis Change Notices 24590-WTP-ABCN-ESH-02-001, Revision 0; 24590-WTP-ABCN-ESH-02-010, Revision 0; 24590-WTP-ABCN-ESH-02-013, Revision 0; and 24590-WTP-ABCN-ESH-02-015, Revision 0," CCN 029186, dated May 1, 2002.

the RPP-WTP, (e.g., radioactive iodine and noble gases), it was necessary to tailor this guidance in order for it to serve as a standard for the WTP. This proposed tailoring included: changing the implementation text from "should" to "shall;" updating references; changing "control room emergency zone" to "ventilation zone;" and removing guidance on iodine removal systems.

The evaluation of the proposed changes to the SRD is documented below.

3.0 EVALUATION

Changes to SRD Implementing Standard For SC 4.3-7, i.e., Tailoring of NUREG-0800:

A. Proposed editorial changes to NUREG-0800, Pages 6.4-4 through 6.4-6:

- Remove the redline, strikeout, and annotations from the NRC draft NUREG-0800 to avoid confusion between text changed as WTP tailoring versus text altered as part of the NRC draft.
- Clarify the requirements for the type of pressurization system such that only one of the requirements would be met at a time.
- Correct the typographical errors that existed in the original Draft NUREG-0800, Revision 3.
- Update the references to incorporate the latest revisions of the referenced Regulatory Guides.
- Update the wording in NUREG-0800 to be consistent with wording of the revised Regulatory Guides.
- Remove the references not used in the portion of NUREG-0800 cited in the SRD SC 4.3-7.
- Renumber and reorder the references.

Evaluation: (acceptable)

The proposed changes were evaluated and found to be acceptable since the changes specified above were editorial and these revisions to NUREG-0800 were consistent with the SRD SC 4.3-7.

B. Proposed changes to NUREG-0800, Pages 6.4-4 through 6.4-6 all items; change "should" to "shall".

Replace all instances of the word "should" with the word "shall."

Evaluation: (acceptable)

Changing "should" to "shall" is acceptable because NUREG-0800 was a guidance document for NRC licensees, and as guidance, the word "should" is appropriate; however, since it is being adopted as a standard, the word "shall" is more appropriate.

- C. Proposed changes to NUREG-0800, Page 6.4-4, Item 1, Ventilation:
In the first sentence, change "emergency" to "ventilation."

Evaluation: (acceptable)

This change is acceptable since for project purposes, "control room emergency zone" equates to ventilation zone and the word "ventilation" conveys a clearer meaning for the WTP.

- D. Proposed changes to NUREG-0800, Pages 6.4-4 and 6.4-5, Items 1 through 3, Main Control Room

Revise the control room habitability guidance for items in NUREG-0800 to only apply to the WTP main control room in the Pretreatment (PT) facility.

Evaluation: (conditionally acceptable)

In response to the proposed changes associated with the main control room, the reviewers requested more information, sent to the Contractor as Question ABCN-ESH-02-015-01.² The reviewers determined that the submittal proposed that control room habitability standards in SRD SC 4.3-7 and NUREG-0800 would only be applied to the PT main control room and not to the other WTP control rooms (e.g., PT standby control room, the Low Activity Waste or High Level Waste control rooms). The Contractor agreed to delete the wording that implied SRD SC 4.3-7 and NUREG-0800 only applied to the PT main control room in their responses to the questions.³ With the exception of changing "should" to "shall," the Contractor committed to retaining the original wording of NUREG-0800 as specified in response to Question ABCN-ESH-02-015-01. The ABCN is conditionally acceptable based on deleting the words "main control room" and retaining the original wording as committed to in the response to Question ABCN-ESH-02-015-01.

- E. Proposed changes to NUREG-0800, Page 6.4-4, Item 1.a, Critical Document Reference File

In Item 1.a, delete the words, "...the plant, i.e., the control room, including the critical document reference file."

Evaluation: (conditionally acceptable)

The original wording of the standard stated, "The control room emergency zone should include the following: a. Instrumentation and controls necessary for a safe shutdown of the plant, i.e., the control room, including the critical document reference file." This provides a commitment to have critical documents (e.g., normal operating and emergency procedures, drawings, system descriptions) available in the control room. The term

² ORP letter from R. C. Barr to R. F. Naventi, BNI, "Questions on Authorization Basis Change Notice 24590-WTP-ABCN-ESH-02-015, Revision 0," 02-OSR-0268, dated June 18, 2002.

³ BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Closeout Comments on Low Activity Waste Construction Authorization Requests," CCN 035133, dated July 3, 2002.

"critical document reference file" is not used in the DOE system. However, the Contractor has stated that an equivalent term in the DOE system is "vital records." The Contractor has agreed to replace the phrase "...including the critical document reference file" with, "...i.e., including those vital records necessary to establish and maintain a safe state of the facility." The Contractor provided the evaluation demonstrating that this is an equivalent term in a revision to question response ABCN-ESH-02-015-02.⁴ The Contractor has stated the concept of DOE vital records is discussed in DOE/RL-94-02, *Hanford Emergency Management Plan*, in Section 14.3.5, *Vital Records*, and the term "safe state" has been defined in DOE/RL-96-0006, *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for the RPP Waste Treatment Plant Contractor*, Rev. 2, Section 8.0, Glossary. These DOE related terms establish an equivalent commitment and provide a basis for identification of the specific "vital records" which should be maintained within the control room ventilation zone. The ABCN is conditionally acceptable based on addition of the wording shown above as committed to in the revised response to Question ABCN-ESH-02-015-02.

- F. Proposed changes to NUREG-0800, Page 6.4-4, Item 2.a, Isolation Dampers
Item 2.a, in the third sentence add the words "be determined by safety analysis and" following "shall," and replace the acronym "SAR" with "FSAR."

Evaluation: (conditionally acceptable)

The change to add wording "be determined by safety analysis" is acceptable since the wording clarifies the process to determine appropriate leak tightness of ventilation systems. In response to changing the wording from "SAR" to "FSAR" for isolation dampers, the reviewers requested more information, sent to the Contractor as Question ABCN-ESH-02-015-02.⁵ The Contractor adequately addressed this concern in their response to the question⁶ by agreeing to retain the original wording ("SAR") from NUREG-0800. The ABCN is conditionally acceptable based on retaining the original wording "SAR" as committed to in response to Question ABCN-ESH-02-015-02.

- G. Proposed changes to NUREG-0800, Page 6.4-4, Item 2.b, Active Components
Item 2.b, delete the second sentence, "All the components of the control room emergency filter train should be considered active components."

Evaluation: (acceptable)

This deletion is acceptable because the term "active component" as it refers to the concept of "single failure" has been defined elsewhere in the project documentation.

- H. Proposed changes to NUREG-0800, Page 6.4-4, Item 2.b, Appendix A
Item 2.b, delete the third sentence, "See Appendix A to this SRP for criteria regarding valve or damper repair."

Evaluation: (acceptable)

⁴ BNI letter from A. R. Veirup to M. K. Barrett, ORP, "Closeout Comments on Low Activity Waste Construction Authorization Request," CCN-038762, dated August 27, 2002.

⁵ Ibid 2.

⁶ Ibid 3.

This deletion is acceptable because the sentence referred the reader to an appendix containing an alternative for meeting the criteria cited; however, the standby emergency ventilation system planned for the control room is not a complex system and this alternative is unnecessary.

I. Proposed changes to NUREG-0800, Page 6.4-5, Items 3.a and 3.c, Frequency of verification

In Items 3.a and 3.c, delete the parenthetical phrase "(every 18 months)."

Evaluation: (conditionally acceptable)

In response to this proposed change, the reviewers requested more information, sent to the Contractor as Question ABCN-ESH-02-015-02.⁷ The reviewers had concerns that sufficient justification was not provided for deleting the frequency of every 18 months to verify pressurization systems. The Contractor adequately addressed these concerns in their response to the question by indicating the verification frequency will not exceed 18 months.⁸ The ABCN is conditionally acceptable based on wording committed to in response to Question ABCN-ESH-02-015-02.

J. Proposed changes to NUREG-0800, Page 6.4-5, Items 4 and 5.b, Exposure thresholds

Clarify that exposure thresholds for protection of control room personnel from chemical hazards are provided in the SRD SC 4.3-7.

Evaluation: (acceptable)

The addition is acceptable because it corrected inconsistencies between the chemical exposure thresholds referenced in NUREG-0800 and the SRD. The chemical exposure thresholds in the SRD are based on 29 CFR 1910.120 and are more conservative than the exposure thresholds referenced in NUREG-0800. SC 4.3-7 addressing control room and control area requires that the operator exposure "not exceed the worker exposure standards of 29 CFR 1910.120 for emergency exposure."

K. Proposed changes to NUREG-0800, Page 6.4-5, Item 3.b, NRC licensing process

In the second sentence of Item 3.b, replace the words "at the CP, combined license (COL), or standard design certification stage" with "during system design."

Evaluation: (acceptable)

The change was acceptable since the Contractor confirmed understanding that "during system design" was to take place at the PSAR stage. The deleted words were references to stages in the NRC licensing process that have equivalent stages in the Contractor authorization basis regulated by the ORP. The deleted CP is equivalent to the PSAR.

L. Proposed changes to NUREG-0800, Page 6.4-5, Item 4, Radioactive iodine

Delete the first two sentences, "Iodine removal for this system should be in accordance with the guidelines of Regulation Guide 1.52 and will advise the AEB accordingly."

⁷ Ibid 2.

⁸ Ibid 3.

Efficiencies for systems not covered by Regulation Guide 1.52 (sic) will be determined on a case by case basis by ETSB."

Evaluation: (acceptable)

The deletion is acceptable since the quantity of radioactive iodine in the waste to be processed is very small and under accident conditions does not pose a significant airborne hazard as it does for commercial nuclear power facilities.⁹

M. Proposed changes to NUREG-0800, Page 6.4-5, Items 4 and 5.b

In Item 5.b, second sentence, replace the words "The acceptance criteria for the control room habitability system are provided in Regulatory Guide 1.78 with respect to postulated hazardous chemical releases in general and in Regulatory Guide 1.95 with respect to accidental chlorine releases in particular" with, "The evaluation of control room habitability during the postulated release of hazardous chemicals shall be consistent with the methodologies presented in Regulatory Guide 1.78 (Reference 2) and Draft Regulatory Guide G-1111 (Reference 3)."

Evaluation: (conditionally acceptable)

In response to this proposed change, the reviewers requested more information, sent to the Contractor as Question ABCN-ESH-02-015-02.¹⁰ The reviewers had concerns that it was not clear from the revised wording that after performing the evaluation, the Contractor would ensure protection of control room personnel is consistent with 29 CFR 1910.120 emergency exposure thresholds cited in SC 4.3-7. The Contractor adequately addressed these concerns in their response to the question¹¹ by adding the following sentence, "Evaluation results will be compared to these exposure thresholds to ensure that the control room emergency standby atmospheric filtration system is capable of maintaining personnel protection during off-normal and emergency events." The ABCN is conditionally acceptable based on wording committed to in response to Question ABCN-ESH-02-015-02.

4.0 CONCLUSION

Based on the evaluation of the proposed changes described above, the ORP found the proposed changes to be conditionally acceptable. Conditional acceptance is based on wording changes committed to in the responses to Questions ABCN-ESH-02-015-01 and ABCN-ESH-02-015-02. The ORP concluded there is reasonable assurance the health and safety of the public and the workers, and the environment will not be adversely affected by the proposed changes. Furthermore, the ORP determined the proposed changes comply with applicable laws, regulations, and RPP-WTP contractual requirements

⁹ BNI Document 24590-PTF-M4C-V11T-00003, "Pretreatment, HLW and LAW Vitrification Predicted Maximum Radionuclides," Revision 1, dated October 5, 2001.

¹⁰ Ibid 2.

¹¹ Ibid 3.